

Tense Marking in Serial Structures*

Francis Byrne
Shawnee State University, Ohio

1. Introduction

The motivation for this paper is two-fold. It will first propose an alternative analysis to, and hopefully resolve, a debate between Byrne (1987, to appear) and Bickerton (1984, 1987) on the one hand and Boretzky (to appear) (among others) on the other. The debate revolves around the relevance of the apparently unique non-verb-initial tense marking in Saramaccan (hereafter SA) serial structures in relation to tensing in Atlantic Creole¹ and West African serials. The position of Byrne and Bickerton is that SA serial tense marking is partial evidence for the spontaneous generation of the structures in initial deep creolization,² while Boretzky et al. view creole serialization, including that found in SA, as constituting transfer from substrate languages during the creolization process. The second aim is to present a unified theory of the different interlanguage tense marking instantiations within serial structures by arguing that each different pattern is ultimately a result of at least scope, with morphosyntactic spreading then a possibility.

The major questions which arise from the paper's objectives are: 1.) if there is an intrinsic identity between tense patterns in the selected serializing languages under scrutiny, and 2.) if there is some level of identity, then what are the grammatical processes involved, their significance in serial structures, and the implications for the creolization process. While the languages under discussion are an extremely limited subset of the world's serializing languages,³ they nevertheless exhibit a wide (and perhaps representative) range of variation in their tense marking patterns, and significantly also share the same intrinsic typological features associated with serialization. The languages to be evaluated here should therefore be sufficient to understand the reasons for the variation.

This paper is divided into three parts. It will first briefly summarize the substrate vs. spontaneous generation debate as it applies to serial tense marking in Atlantic creoles and West African languages (especially the Kwa subgroup). I will then discuss the variability of such marking in Saramaccan (hereafter SA), followed by analyses of similar and different serial tense patterns in a number of other languages. I will argue that there is an essential unity among all serializing languages included in this paper despite the apparent differences because of the distinct but interrelated processes of scope and spreading. That is, if a language exhibits serialization (regardless of whether it is a creole, a West African language, or some other areal or typological variety), then it must have the same scopal properties for tense marking in serial structures despite its overt tense marking pattern. Finally, I will detail some implications of the discussion for creoles and the creolization process.

2. Serialization and the Serial Controversy

We can generally define serialization, and by implication serial verbs, as the phenomenon among many creole and non-creole languages where verbs, or

verb-like formatives, function in various roles which are normally performed in non-serializing languages by prepositions, adverbs, complementizers, or single verbs (in the case of verbal extensions where one verb modifies another and a serializing language's lexical repertoire is thereby expanded - see Sebba (1984)). In addition to the definition, it is also generally assumed that serials have the following characteristics:⁴

- (1) a. Tense⁵ is marked once, *usually* with the initial verb, or tense is repeated with all serial verbs in the string.
- b. There are no overt coordination or subordination markers immediately preceding serials.
- c. The second and subsequent occurrences of coindexed subjects may be phonologically null (i.e. are empty categories); second and subsequent occurrences of coindexed objects will be null.⁶

2.1. Substratists and Serials.

The substrate position is that there is a direct relationship between the presence of serialization in creoles and the original substrate contact languages. Arends (1989a,b), Holm (1986, 1987, 1988), Huttar (1975, 1981, 1985) and Lefebvre (1986), among others, claim that there are strong lexical, structural, and/or semantic links between Atlantic creoles and especially the Kwa group of African languages. They conclude that this cannot be by chance and represents a perfect illustration of transfer based on present-day identity. Included among various serial claims for the process, Sebba (1987:214) makes the fairly strong observation that there must be a direct causal relation between creoles and their substrate languages since "a relatively small proportion of the world's known creoles have serial verbs, and ... these are precisely the ones which have well-documented substrate input from serializing languages." And Farclas (1989), for his part, concludes that the range and type of serials in Tok Pisin of Papua New Guinea and Nigerian Pidgin English duplicate what occurs in the surrounding substrate languages. This can only be explained by adducing transfer for creole serialization.

The literature on the substrate view is both extensive and impressive in its volume. The bottom line, however, seems to consistently revert back to the following syllogism: if serialization, for example, occurs in substrate languages, and they were present in the seminal contact situation, then it will appear in the creole. Taken another way, the extreme view is that all creole serialization, and therefore the associated tense marking patterns, is a direct result of transfer from other languages.

2.2. Universalists and Serials

The contending view, in its strongest form (Bickerton 1981, 1984), states that serialization is not a product of substrate languages during creolization, but rather is a result of children having to develop a language almost *ex nihilo* from inadequate and deficient pidgin input. Serialization, then, is a direct reflection of our innate linguistic knowledge. In a less all-inclusive interpretation, Bickerton (1984b, 1988) explains that the bioprogram is best observed in the more radical creoles such as SA,⁷ with others being progressively less "pure" because of more elaborated pidgin input (i.e. more

successful L2 acquisition). He even allowed for substrate influence in some instances at the 1985 Amsterdam Creole Workshop.

In support of serialization being a spontaneous development in at least radical creoles, Byrne (1987) found that the synchronic grammar of SA has a *productive* categorial repertoire consisting strictly of nouns and verbs as major categories⁸ and determiners,⁹ conjunctions, and tense and aspect markers as minor categories. From the remaining normally assumed categories (i.e. taken from an Indo-European perspective), there are instances of prepositions in the language, but the only productive member of the class is the general locative *a* 'in, on, into, from, to, etc.'. The remainder such as *ku* 'with' or *fu* 'for'¹⁰ are functionally marginal and can generally be expressed through alternative syntactic means.¹¹ There is likewise no evidence for the major category *adjective* in predicate contexts,¹² nor for complementizers. With very few exceptions, "complementizers" such as preclausal *fu* 'for, obligation' and *táa/tákl* 'say, that' exhibit the diagnostics of a verb. Nor are adverbs a consistently productive class; their functions are often achieved through the use of serial verbs.

The categorial limitations of synchronic SA, along with the primacy of one and two NP arguments within a clause (i.e. no three-argument strings with contiguous NP objects of the type *John gave THE MAN THE PEN*) and aspects of the Saramaka's chronological and demographic history (see Byrne (1987: Chapter II), Price (1976; 1983a,b)), lead to the view that early SA contained the minimum syntactic attributes necessary for the status of a natural language and, taking the ideas of Bickerton's bioprogram to their obvious conclusion, represented the universal bedrock of human language. Moreover, to express the critical functions of the absent categories in the incipient language, the early Saramaka were forced to generate maximal syntactic output from minimum syntactic input. Because of this situation, they adopted a serial strategy in which verbs were used in place of the "missing" formative-types. Given the facts and analysis, then, serialization in at least radical creoles is not in itself a part of universal grammar (i.e. the bioprogram), but is a necessary by-product of such languages' phrase structure and categorial status. Hence, rather than use adverbs, prepositions, or contiguous object NPs, the SA utilized a verbal strategy as in (2).

- (2) a. a féfi dí wósu kábá ADVERBIAL-LIKE SERIAL
 he paint the house finish
 'He painted the house already.'
- b. a tái góni súti dí pingó PREPOSITION-REPLACING SERIAL
 he take gun shoot the pig
 'He shot the pig with a gun.'
- c. Kófi báí dí búku dá dí muyée ARGUMENT INTERVENING SERIAL
 Kofi buy the book give the woman
 'Kofi bought the woman the book.'

Each of the SA verbs in (2) is also within separate finite clauses. Part of the evidence for a clausal status is both empirical and theory-internal within the Government and Binding (GB) model of Chomsky (1981, 1982, 1986). The motivation for the finiteness of such items, however, is entirely empirically based in that most verbs in a serial string can be independently tense-marked

(those that do not allow such are best viewed as infinitives).¹³ This means that the SA tense marker *bi* may overtly appear before any or all the verbs in (2) with no change in meaning. Consider (3,4,5) below.

- (3) a. a *bi* féfi dí wósu kabá
he Tense(TNS) paint the house finish
'He had painted the house already.'
- b. a féfi dí wósu *bi* kabá
...TNS...
'He had painted the house already.'
- c. a *bi* féfi dí wósu *bi* kabá
...TNS... ...TNS...
'He had painted the house already.'
- (4) a. a *bi* téfi góni súti dí pingó
he TNS take gun shoot the pig
'He had shot the pig with a gun.'
- b. a téfi góni *bi* súti dí pingó
...TNS...
'He had shot the pig with a gun.'
- c. a *bi* téfi góni *bi* súti dí pingó
...TNS... ...TNS...
'He had shot the pig with a gun.'
- (5) a. Kófi *bi* báí dí búku dá dí muyée
Kofi TNS buy the book give the woman
'Kofi had bought the woman the book.'
- b. Kófi báí dí búku *bi* dá dí muyée
...TNS...
'Kofi had bought the woman the book.'
- c. Kófi *bi* báí dí búku *bi* dá dí muyée
...TNS... ...TNS...
'Kofi had bought the woman the book.'

The first verb in (3-4-5a), being the matrix, unsurprisingly allows tensing. What is thought to be different from other serializing languages, however, is that this marker may appear with no change in meaning either before the second serial only (3-4-5b) (or any subsequent serial with additional verbs in a string), or with all verbs (3-4-5c). In contrast, scholars have often typified West African and Atlantic creole serializing languages as having either verb-initial tense marking such as in (6) and (7), or tense copy as in (8).

- (6) a. á *ká* lách cāk usá? ha a Bamiléke (Hyman 1971)
he past take pot come give me
'He brought the pot for/to me.'

b. *á lách cāk ká usá? ha a
...past...

c. *á lách cāk usá? ká ha a
...past...

(7) a. a bín tek dí buk go na skul Krio (Williams 1971)
I TNS take the book go LOC school
'I brought the book to school.'

b. *a tek dí buk bín go na skul
...TNS...

(8) meyé adwuma memaa Amma Akan (Schachter 1974)
I-do-RET work I-give-RET Amma
'I worked for Amma.'

The obvious tense-initial correspondence between a West African language like Bamileke in (6) and Krio in (7), which is representative of the great majority of Atlantic creoles, would naturally lead to a conclusion of transfer. Even the SA tense copy pattern in (3-4-5c) corresponds to the dialect of Akan in (8) and also offers a causal explanation. But independent tense marking in SA such as in (3-4-5b) is problematic in that it appears to be unique and thus constitute evidence against substrate influence. However, upon a more extensive analysis, there is in fact an underlying tense marking unity among all serializing languages, although as I will argue in section 4.0, such a conclusion does not necessarily warrant serial transfer among creoles and their corresponding substrate languages.

3. Scope and Spreading

The main problem with serial tense-marking phenomena is not in interpreting the range of speech to which they apply (although this is an interesting question), but in determining why and how there is such great variability within and between the languages. In addition to the serial characteristics delineated in (1), a fourth basic premise is that the temporal orientation of the verbs in any such string must be interpreted as the same. Since serials are part and parcel of a single proposition, and retain a verbal categorial status while undertaking the grammatical functions or semantic extensions imposed by some central or matrix verb, if there were different temporal readings on such verbs, they would constitute separate propositions. Thus (9) with different overt temporal markers on dá 'give', for example, ceases to be a serial and two propositional matrices are the result.

(9) Kófi bí báí dí búku tá dá dí muyée
Kofi TNS buy the book TNS/ASPECT give the woman
'Kofi had bought the book (and) is giving (it) to the woman.'

Similarly, (9) without the tense/aspect marker tá may have a non-simultaneous interpretation (i.e. nonserial) if bí is thought to only apply to báí 'buy'.

(10) Kófi bí báí dí búku dá dí muyée
'Kofi had bought the book (and) (then) gave (it) to the woman.'

An explanation of (9) and (10), as well as noninitial or repeated tense marking in SA (3-4-5b,c) and other languages, seems to revolve around the separate but, in terms of this paper, interrelated processes of scope and spreading. I will begin by first discussing the concepts in relation to SA, and then continue with other languages.

3.1. Scope

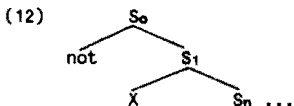
I define scope as the interpretative range over some syntactic domain of some semantic property. A more technical definition within logic and linguistic semantics is that scope "is the argument term(s) of an operator" (Pieter Seuren, p.c.). As interpreted in Chomsky (1981, 1986), Kim and Larson (1989), and McCawley (1988a,b), among others,¹⁴ the term *operator* signifies an item such as a tense or negative marker (Janssen 1983:55) whose import semantically affects (i.e., has scope over) a determined linguistic range and which, in a configurational sense, must dominate the affected segment of language. In other words, the element whose meaning emits scopal properties (i.e., an operator) must "look downward over" (David Dowty, p.c.) (i.e., c-command)¹⁵ its domain (its argument term(s)).

In a simplified illustration, observe that the interpretative range of the negator $-n't$ in (11a,b) varies with its surface placement.

- (11) a. I deliberately $didn't$ ask her. Crystal (1985:271)
 'I did not ask her.'
 b. I $didn't$ deliberately ask her.
 'I did ask her, but accidentally.'

In (11a) $-n't$ follows deliberately and precedes the VP, giving the impression of its being in Infl. Now this is the optimal position for a negative element to have wide scope over an entire clause, which it does as seen in the gloss. The result is that the action is seen as premeditated and successful. In (11b), however, with $-n't$ (significantly) preceding deliberately, there is a narrow scopal interpretation with the negative element only affecting the adverb ($-n't$ + deliberately = accidentally); the overall result is that the action here is seen as unintentional.

Schematically from a logic perspective, the negative element not (= $-n't$ in (11a,b)) is in the appropriate dominant position to the left in the diagram, with its argument term(s) (its scopal domain) appearing to the right.



In the case of (11a), not is interpreted as affecting the entire clause and so I ask her would be in the X position. Alternatively, not would only dominate deliberately in (11b) since this is the extent of its scopal domain.

3.1.1. Scope and Saramaccan Tense Operators

In turning to scopal properties of tense in SA serials, it seems clear that the tense marker is a scopal operator. A principal diagnostic to determine such is if ambiguity is present resulting from tense interpretation. In (10), this is exactly what we find. *bi* before the initial verb *bái* 'buy' can be interpreted as only having scope over the initial clause. This clause thereby receives a past-before-past (roughly pluperfect) reading, with the second clause having a simple past orientation (as is normal for "bare" nonstative verbs in creole languages). The result is two separate events, a fact which the gloss of (10) reflects. Alternatively, if *bi* is thought to apply over the entire sentence, then a quite different serial reading will occur: 'Kofi had bought the book for the woman'. The ambiguity which results from the two different interpretations is directly a result of the scope of *bi*. This, in turn, supports the view that the item is a scope-bearing operator which, to be consistent with patterns discussed in the literature for other languages, must c-command (structurally dominate) the constituents under its influence.

An adequate scopal analysis of the tense marking variation in SA serials is now possible. In turning once again to the SA data in (5a-c) as a representative sample of the language's tense marking patterns (repeated below as (13a-c)), notice that no matter which verb has such marking, the same exact interpretation ensues.

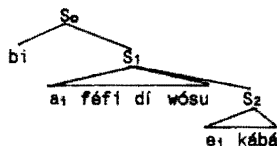
- (13) a. Kófi *bi* *bái* dí búku *dá* dí mùyée
Kofi TNS buy the book give the woman
'Kofi had bought the woman the book.'
- b. Kófi *bái* dí búku *bi* *dá* dí mùyée
...TNS...
'Kofi had bought the woman the book.'
- c. Kófi *bi* *bái* dí búku *bi* *dá* dí mùyée
...TNS... ...TNS...
'Kofi had bought the woman the book.'

Such identical readings signify that the scopal domain of *bi* remains over the entire serial string regardless of whether the item appears before the first verb *bái* 'buy', the second *dá* 'give', or both.

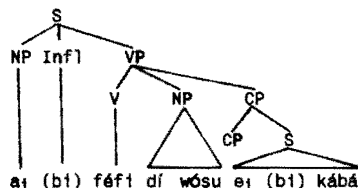
However, because *bi* is not overtly present before the higher verb in sentences such as (13b), the question arises as to how the item can have scope over both. Since tense in SA (and other languages) is an operator and thereby a scope-bearing unit, then it would seem reasonable to assume that structural dominance (i.e. presence before the first verb) would also be necessary in this case. In fact, this is exactly what happens in (13b). Because tense appears before the higher verb in (13a) and (13c), we know that such marking is possible. Moreover, the import of *bi*, past before past, unambiguously applies to *bái* 'buy' in (14b) exactly as in (13a) and (13c) (as indeed it must since there is but a single semantic (but not syntactic) proposition to which a tense orientation can apply - see Bickerton (1990), Bickerton and Iatridou (to appear), Binnick (1976) and Borer (1989), among others, for analyses and/or identification of the phenomenon).¹⁰ One reasonable assumption, then, given the surface level variation of overt tense before initial verbs

in (13a,c) and the necessity for the scope-bearing element to be in a dominant position, is that *bi* is also present before *bál* 'buy' in (13b), but is not phonologically overt. However, this is an aggravating (but perhaps avoidable) complication forced onto the analysis by the theory. An alternative is to represent the semantics and syntax separately as in (14a,b) below.

(14) a. Semantics



b. Syntax



The parentheses in (14) signify that the enclosed element is present but without phonological form, and the subscripts indicate that all such tense marking must be the same. The result of (14) is that at the level of tense marking, all SA serials actually have the same identical underlying pattern.

The surface variation itself, and especially that of (13b), is probably a result of some sort of phonological economy. If an item does not have to be articulated for the import to be achieved, then this will more than likely result in variable occurrence. The overall variability, in turn, could have developed some sort of stylistic significance within the community as a whole (Solange Lira, p.c.), producing an adequate level of motivation to maintain the patterns.

Finally, based on the previous discussion, it seems that serial characteristic (1a) should be reformulated in terms of scopal properties. As it is now, it merely constitutes a description of the overt tense-marking patterns of most but not all serializing languages (SA and at least two Portuguese creoles and one French creole are the exception - see section 3.3). It thereby misses the greater generalization that a serial string must have the same temporal orientation; that is, the scope of tense-markers must apply equally throughout a serial structure. A better rendition of (1a), then, should be something like (15).

- (15) The scope of serial tense markers must range throughout the serial string.

3.2. Spreading

Spreading, for its part, was originally a term which Goldsmith (1976) developed for autosegmental phonology as a way of explaining the extension of nasalization and tone from some segmental locus. Subsequently, Caskey (1987, 1989) and McCawley (1988a:318, footnote 12) were the first, as far as is known, to apply the term to levels of morphology and syntax. Following Byrne (1989a), I define the concept for purposes of this paper as the appearance of redundant morphemes throughout a domain with those formatives/constructions whose properties allow it. In other words, a particular formative or morphological element may be repeated in some or all appropriate positions throughout a specified segment of speech if the language or dialect allows such. As

Carlson (1983) and McCawley (1988:261, footnote 27)¹⁷ observe, what this signifies is that the repetition of an item in the sense used here does not add up to multiple semantic instantiations of a particular meaning; rather, there is but a single meaning with reduplications of the content-bearing element.

3.2.1. Specifics of Spreading

The phenomenon appears to be quite common in the world's languages, but for reasons of space limitations, I will limit the discussion to English, Dutch, Old Norse, SA, and a representative sample of Atlantic creoles and West African serializing languages.¹⁸ In beginning with English, we find, for example, that morphophonemic extensions such as *quicker picker upper* give a sense of phonological spreading throughout the phrase by the repetition of the conveniently homophonous *-er* suffixes with comparative (*quicker*) and agentive (*picker upper*) imports. In the latter case and at the morphological level, however, there are not two separate agentive readings, but just a single one with scope over both *picker* and *upper*. Morphophonological comparative and superlative repetitions with identical scopal properties also occur in children's speech and substandard English in such phrases as *more smarter* and *most greatest* (Carlson, p. 76).

The phenomenon is likewise both historically and synchronically common in English with negation. While there are multiple negative markers in such informal synchronic utterances such as (16) below and in the Old English example in (17) from Millward (1989:93), there is again but a single semantic negator with scope over each clause.

(16) He isn't going nowhere anyhow.

(17) ... and *neāþer* *ne* heoldan *ne* lāre *ne* lage *ne* manna
and neither not we-observe not teaching not law not-of-men

swā *swā* we scoldan
we ought-to

'... and neither do we observe wisdom, law, and [the affairs] of men as we ought to.' (translation added)

Note that alternatives to multiple negation in the informal English in (16) are the synonymous *he isn't going anywhere anyhow* and the gloss to the Old English segment in (17). That a single syntactic negative marker is possible in both (but allowing for the fact that such was *not* customary in Old English, but only in its reflex version) illustrates the presence of one semantic negator in the sentences.

A common approach to such multiple forms in the past was an analysis along the lines of agreement and concord (e.g., Labov 1972). However, the first, or agreement, implies particular morphological marking and substance over a stretch of speech, with scope not necessarily being present (e.g. subject-verb agreement in English). Concord, for its part, is often thought to be synonymous with agreement (see Crystal 1985), but in stretching the traditional view a bit, we could envision it to apply to the kind of data discussed here. In any case, to utilize the terminology of agreement or concord may be misleading because of its traditionally *different* application to certain types of

data. A clearer and perhaps more efficient way of looking at the phenomena should be through scope and spreading. For instance, in all of the above examples it appears that a prerequisite for spreading is that there be semantic scope over the area where the proliferation of elements takes place. Thus the Old English and informal synchronic English examples with multiple negation, and even something like *more smarter/most greatest*, could not occur if the scope of negation and the comparative/superlative did not include the entire phrase or clause. This generalization could not necessarily be made if we attributed the phenomena to agreement and concord as traditionally viewed.

Finally, the application and restrictions on spreading at the levels of phrase and clause appear to be basically similar in all critical respects. As a first approximation (and certainly subject to confirmation and a more in-depth treatment than can be given here), the data suggest that an element whose scopal properties extend over a segment of speech can only replicate itself in those positions which the language's syntax would naturally and nonexceptionally allow. Thus, the comparative and superlative forms in *more smarter* and *most greatest*, and all negative elements in (16) and (17), appear in positions in which they would independently occur in the language. If adequate discussion and examples were presented, then, we would find that in no instance do the various forms appear in positions which are not warranted by the grammar.

In a similar vein, Carlson (1983:76) presents Old Norse data from Gordon (1927) which shows that the language could redundantly mark definiteness in NPs, but always with just a *single* 'definite' meaning.

- (18) a. *þat it helgi sæ ti*
 the the holy-def seat def
 'the holy seat'
- b. *hafit þat it djupa*
 sea-def the the deep-def
 'the deep sea'

In a possible reflex of Old Norse, modern Norwegian likewise allows multiple determiner marking to express degrees of definiteness. In (19a), *det* 'the' and the suffix *-et* 'the' together produce a demonstrative, but with single marking (either *det* or *-et*), a less definite 'the' reading is achieved (19b,c).

- (19) a. *Det stort huset*
 the large house-the
 'that large house'
- b. *Det stort hus*
 the large house
 'the large house'
- c. *Huset*
 'the house'

The result of (18) and (19) is that with the scope of 'definiteness' over the entire NP in Old Norse and Norwegian, the languages permit spreading only in

those positions which the grammar normally allows. This is shown most clearly in (19a,b,c).

Finally, Pieter Seuren (p.c.) offers interesting evidence from Dutch. He notes that pluralization in the language is often doubly marked with both German and Dutch suffixes, in that order.

- (20) a. German: ei 'egg', eic 'eggs'
kind 'child', kinder 'children'
- b. Dutch: ei 'egg', eiren 'eggs'
kind 'child', kinderen 'children'

While the Dutch plurals in (20b) are obviously a result of German influence, still Seuren points out that German is intelligible to Dutch speakers and they consequently understand eic 'eggs' and kinder 'children' to be plural. They likewise are aware that there are double plurals on their nouns, but because one of the plurals is "foreign" and the pattern is linguistically institutionalized, these factors militate against any other output (i.e. single pluralizer). In any case, because there is plural scope over each noun, such spreading is understandable and certainly unremarkable based on the previous data.

3.2.2. Saramaccan Serials and Spreading

An account of spreading with SA serials is now straightforward. Since tense is an operator in the language, it must be in a dominant position (before the first verb) in order to have scope over an entire serial string. And because of the nature of serialization (see sections 2 and 3.1.1, and (15)), the import of tense must apply to the entire serial domain rather than to just the clause where it is found. As exemplified in section (13), (14) and below, these facts allow the tense marker to appear only once before the initial verb (21a), or to replicate itself in a kind of semantic reiteration (21b) when the conditions found within a particular constituent warrant it.

- (21) a. a bi tsá dí meliki gó a dí konde
he TNS carry the milk go to the village
'He had taken the milk to the village.'
'He had carried the milk (and) (then) went to the village.'
- b. a bi tsá dí meliki bi gó a dí konde
..TNS... ..TNS...
'He had taken the milk to the village.'

As mentioned or discussed in numerous publications,¹⁹ all clauses with few exceptions are finite in SA. One of the many diagnostics of such status is the possible appearance of overt tense. Thus, since the verbs in (21a,b) are finite, they would naturally allow the full range of markers appropriate for this status. If, additionally, finite verbs are within the tense scope domain of a (configurationally) higher tense operator, then that tense marker could, logically, be repeated with the appropriate lower constituents (i.e. finite verbs). Note (22) (from a similar diagram in Caskey (1989)).

- (22) a tsá dí meliki gó a dí konde 'He had taken the milk to the village.'
-

As (22) illustrates, SA allows tense marking only before verbs within the same tense scope domain. Moreover, it does not allow *bi* in inappropriate contexts such as before any nonverbal constituents (or infinitival verbs).

In regard to tense marking exclusively on a lower serial verb, this would seem to be the preferable option for at least two reasons. First, tense on the second verb only (or subsequently in longer serial strings) in (23) below is not ambiguous as is verb-initial only tense marking (21a).²¹

- (23) a tsá dí meliki *bi* gó a dí konde
 ...TNS...
 'He had carried the milk to the village.'
 *'He carried the milk (and) had gone to the village.'

The second gloss above is impossible because of a SA strategy in consecutive action sentences of mapping events onto a temporal sequence of occurrence order. Since *bi go* would be prior to the unmarked *tsá 'carry'* in (23) with a consecutive action interpretation, that reading is ungrammatical. As a serial, however, (23) would be preferable to (21a) because of its greater clarity due to nonambiguity. Second, (23) is also phonologically more economical and thereby represents less effort than (21b). Since in either case a serial reading is the only possible interpretation and the scope of any tense marking has to apply to the entire string, through spreading a SA speaker can opt to give phonological form to tense marking on *all* or any one of the lower serial verbs. All in all, then, when all factors are taken into consideration (but especially tense and spreading), we find that there really is nothing unique or unusual about the SA tense marking patterns; they simply represent a perhaps somewhat idiosyncratic patterning due to the interaction of the language's morphology, syntax and semantics.

3.3. Tense and Scope in Other Serializing Languages

In a fairly brief analysis, a delineation and discussion of serial tense marking phenomena in other serializing languages shows that there really is no difference from SA. All are explainable through the dual processes of scope and spreading. The patterns which will be reviewed (and should exhaust the possibilities in all serializing languages), are 1.) variable creole marking like SA, 2.) African tense copy and echoic tense, 3.) verb-initial only marking, and 4.) SOV tense-final serials.

3.3.1. Creole Tense Copy and Non-Verb-Initial Tense

I originally thought that the non-initial tense marking pattern such as in (232) was unique only to SA. Recently, however, additional data have become available which show that SA is not alone among creole languages in its tense marking pattern. While (24) and (25) below from respective Portuguese creoles are not serials (the languages do not utilize the strategy), still the data

exemplify tense scope and spreading like SA serials in selective contexts and are therefore useful. Consider (24) through (27).

- (24) a. N pudi-ba fasi kila Guinea-Casamance Portuguese
I can -ANTERIOR do that Creole (GCPC) (Peck 1988)
'I could do that.'
- b. N pudi fasi-ba kila
 ...ANT...
'I could do that.'
- (25) a. el podeba konta Cape Verdean Kriolu (CVK)
he can-ANT sing (Caskey 1987)
'He could/be able to sing.'
- b. el pode konta
he can sing-ANT
'He could/was able to sing.'
- c. el podeba konta
 ...ANT... ..ANT
'He could/was able to sing.'
- (26) a. li ta nu ka masé bor kaj lã El Callao, Venezuela,
she hear us ASP walk around house the French Creole (ECFC)
'She heard us walking around the house.' (Byrne, Cabrera
 & Ruiz 1989)
- b. li ta nu ka masé ka bor kaj lã
 ..ASP... ..ASP..
'She heard us walking around the house.'
- (27) a. zot pran balye koko bat Kazer Seselwa Creole (SC)
they take broom coconut beat K. (Bickerton 1989)
'They beat the Kaiser with a coconut broom.'
- b. zot ti pran balye koko ti bat Kazer
 ...TNS... ..TNS...
'They beat the Kaiser with a coconut broom.'

Both the Portuguese creoles, GCPC and CVK, allow either the modality or primary semantic verb to have independent overt tense marking (24-25a,b) with no change in meaning. Alternatively, CVK also allows tense copy as in (25c), again with the same meaning. While the aspect marker ka in (26) from ECFC, for its part, is neither tense nor indicates anteriority as in GCPC or CVK, still it shows that the copy pattern is not limited strictly to Portuguese creoles (of which SA is also an example). Note that, like tense marking in CVK and SA, the ASP marker ka may appear either after masé 'walk' or after both masé and bor 'around'²⁰ with identical meaning.²¹ Finally, some SC speakers accept (27a), but those who do not find (27b) with overt tense marking on the matrix and subordinate serial verbs to be acceptable.

From the viewpoint of scope, the overall variable patterning of -ba in GCPC and CVK, ti in SC, and perhaps ka in ECFC (if we presume aspect to

have scope - a debateable point) reflects the extent of the respective tense and aspect scopal domains as discussed for SA. The possibility, however, of either the overt appearance of *-ba* only on lower verbs (24-25b) or tense or aspect copy (25c, 26b, 27b) are a result of spreading. Because each serial verb is finite (although more work and data are needed to determine such a status for ECFC), the conditions are appropriate for spreading to occur. In effect, then, (24), (25), (27) and perhaps (26) are explicable in the same terms as for tense marking in SA.

3.3.2. African Tense Copy and Echoic Tense

The reasons for tense copy in other serializing languages such as Akan in (28) (repeated from (8)) are exactly the same as discussed for SA, CVK, and ECFC.

- (28) *meɣɛ adwuma memaa Amma Akan (Schachter 1974)*
 I-do-RET work I-give-RET Amma
 'I worked for Amma.'

On one level, the above overt tense marking (verb-final vowel lengthening) reflects the sentence's serial scopal domain, and on another, the actual appearance of preterite lengthening could not be possible if each respective verb did not have finite status.

Somewhat more interesting are those instances in West African languages where there is a reduced form of the copy, or what I call echoic tense. Consider (29) from an Akan dialect different from (28), and (30) from Yoruba.

- (29) a. *m' a- fa sekan a- twa Akan (Balmer & Grant 1929)*
 I PERF. take knife PERF. cut
 'I have cut with a knife.'
- b. *me-ba- fa sekan a- twa*
 I FUT take knife FUT cut
 'I shall cut with a knife.'
- (30) *mò N mú iwé bọ Yoruba (Stahlke 1970)*
 I PROG take book come
 'I am bringing a book.'

In regard to (29), Boretzky (to appear) notes that "tense is marked twice, ... and the second tense/aspect marker has a neutral shape indicating agreement only." Thus, *a* in (29a,b) is the same form in both sentences even though the matrix clauses have different marking with *a* 'perfective' and *ba* 'futurity', respectively. This indicates that *a* with the lower verbs has no value of its own, but like a pronominal, is dependent on the nature of the matrix marking for its significance. In a somewhat similar manner, (30) likewise has reduced marking on the second serial. According to Schachter (1974:260),

the form *bọ* ... is a suppletive form of the verb *wá* 'come'. Generally *bọ* occurs after the progressive prefix *wá* in all other contexts. The fact that it is *bọ* rather than *wá* that occurs ... shows that Yoruba has

traces (my emphasis) of the tense-aspect agreement pattern (i.e. tense copy - my insertion) that is systematically present in Akan.

The significance of (29) and (30) is, first, that the reduced forms *ə* and *bə* again reflect the mandatory single scopal domain of a serial structure. In this light, *ə* and *bə* indicate the extent of the domain. Second, such reduced forms also illustrate that spreading is not a prerequisite for serialization like scope. In fact, if a language undergoes change from one with a preponderance of finite clauses to widespread infinitives, then the primary condition for spreading (i.e. finite clauses) will likewise cease to exist. However, because change is not abrupt, but proceeds gradually (see Lightfoot 1979), we should expect that during or after change that residues or traces of prior states remain.²² Thus, *ə* and *bə* in (29) and (30) most likely represent evidence for a prior finite status for at least serials in Yoruba and the variety of Akan in (29). In some sense, then, spreading still exists in these languages, but only in selected environments and in reduced form.

3.3.3. Verb-Initial-Only Marking

Tense marking only on the initial verb of a serial string is common in West Africa (see (6)) and represents the overwhelmingly predominant pattern among the Atlantic creoles (7). Consider (31) from Sranan of Suriname.²³

- (31) a. Roy *ə* tyari a pikin go na oso Sranan
 Roy TNS/ASP carry the child go LOC house (Jansen, Koopman &
 'Roy took the child home.' Muysken 1978)
- b. *Roy tyari a pikin *ə* go na oso
 ...TNS/ASP...
- c. *Roy *ə* tyari a pikin *ə* go na oso
 ...TNS/ASP... ...TNS/ASP...

The only position where tense and/or aspect marking is allowed in these languages is on or before the initial serial verb (31a); marking on any other verb in the string renders the sentence ungrammatical (31b,c).

The significance of (31) is that tense scope encompasses the entire serial structure as it must, but spreading is nonexistent. The reason for this is that the conditions in most creoles are not conducive to the process; second or subsequent serial verbs are not finite (but infinitives) and thereby do not allow tense (nor other marking). Thus, the operant distinction between serializing languages like (31), whether creole or noncreole, and those like SA and the Akan dialect represented in (26) is that of their serials' finite or nonfinite status. Given one or the other condition, then, specific features will manifest themselves, among which is the presence or absence of overt tense marking.

3.3.4. SOV Tense-Final Serials

The major obvious difference between SOV and SVO languages is a reversal of many pre- and post-positionings within clause and phrasal constituencies. In regard to tense scope and spreading, however, the situation remains exactly the same, with the exception that the processes emanate from

the right in SOV languages rather than from the left as exemplified in previous sections. Consider first the data from Ijò below.

- (32) a. erí okí mu toru bein-mi Williamson (1965)
 he swim go river cross-TNS/ASP
 'He went swimming across the river.'
- b. áráú zu-ye ákí buru teri-mi
 she basket take yam cover-TNS/ASP
 'She covered a yam with a basket.'

In both (31a,b), the tense marker *mi* (which, according to comments of Givón (1975), is better typified as tense/aspect) appears clause-finally as is characteristic of SOV languages. This then is the matrix default position for such marking in both serial and nonserial structures. Spreading in these languages is consequently a result of the scopal properties of markers like *mi*, for example, flowing rightward to the other constituents in the serial string and thus allowing a semantically identical marker such as the tense/aspect suffix *-ni* in (33a,b) below to appear if the conditions are acceptable (i.e., if a clause is finite).

- (33) a. omíní barí-ni andá-mi Williamson (1965)
 they repeat-TNS/ASP wrestle-TNS/ASP
 'They wrestled again.'
- b. erí ogidi akí-ní índí pei-mí
 he machete take-TNS/ASP fish cut-TNS/ASP
 'He cut a fish with a machete.'

The situation in (33) thus seems comparable to those instances of tense copy exemplified for Akan, SA and the various French- and Portuguese-based creoles. In addition, with the contrast especially between *akí* 'take' Instrumental clauses in (32-33b), it also seems apparent that Ijò speakers, like those of other languages explicated, have the option of single or tense copy marking.

4. Conclusions

The obvious conclusion from the previous discussion is that there is a basic unity among the various serial tense (and aspect) marking patterns in whatever language serialization appears. The unifying factor is that of scope. No matter where overt tense marking occurs, for a segment of speech to be a serial structure, the same tense orientation must apply throughout. If it does not, it would necessarily be interpreted as something else. A second factor, spreading, explains the variably overt noninitial tense marking; if second or subsequent verbs have finite status, then verb copy or lower verb only marking is permitted. Moreover, such marking, given its apparent commonality, is best looked upon as being a natural consequence of the properties of serialization rather than in any way being exceptional to these languages.

In relation to the questions posed in section 2 concerning the origin of serialization in creole languages (i.e., whether due to substrate transfer or spontaneous generation), Given the facts and analysis, previous claims as to the uniqueness of noninitial serial tensing in languages such as SA, and the

impossibility of its transfer from West African languages because of a lack of congruence, really have little relevance if the analysis in this paper is correct. Nor is there any relevance with assertions of serial transfer in initial creolization based on tense marking patterns (see for example Boretzky (to appear)). What we have seen in the analysis is that tense scope and spreading are simply features of a particular language typology. That is, if a language is going to adopt a serializing strategy, then at least scope, and possibly also spreading, will mandatorily be a part of the tense strategy. There is therefore nothing extraordinary about *SA serial tensing*; it is a language-specific result of particular morphological, syntactic and semantic features. The basic operational principles involved in tense scope and variable tense marking, however, are the same in whichever language serialization manifests itself.

While tense scope and spreading are typological constants, the possibility of overall serial structure transfer is another matter. There undoubtedly are close similarities in the semantics of particular serial-types in Atlantic creoles and West African languages. And the syntax of the structures is for all intents and purposes apparently the same (based on imperfect knowledge of the phenomenon from ongoing and somewhat contentious research and claims). From a congruence standpoint, then, there would seem to be a causal relationship between the substrate languages in the contact situation and the evolution of serialization in a resultant creole. The positions of Faracías (1989) and Sebba (1987) (see section 2.1) would therefore appear to have a semblance of merit.

However, to ascribe transfer to all creole serialization is jumping the gun a bit. For one, Byrne (1987) has shown that a serial strategy is a perfectly natural consequence of certain categorial and phrase structure features (see section 2.2). Arguments to the contrary have not proved effective (e.g. Muysken 1987).²⁴ Even though there were serializing languages in the original SA contact situation, the demographics of the people's early history most probably rendered transfer ineffective. At the least (and this is my contention), serializing substrate languages could have contributed serial reinforcement to a naturally spontaneous process and grammatical stratagem.

It would seem, then, that the only viable approach to serialization in these languages is to leave open the possibility of both transfer and universal processes operating within creolization. In support, studies by such scholars as Philip Baker (1982), Byrne (1987, 1988b), Hancock (1986), and Mufwene (1987) have concluded, contrary to previous thinking, that creolization does not apply equally in the creation of creole languages. Rather, due to extralinguistic factors, these languages may emerge with a greater or lesser degree of input from both the superstrate and substrate languages and will consequently be variably creole from the onset. The implications of such thinking could mean that serialization develops in creoles either as a result of the syntactic dynamics of the emergent system (e.g. SA), or, given possibly less radical creolization, a product of some level of transfer. When and in what degree one process contributes to serialization over the other should be the center of investigative efforts, not whether one or the other is *exclusively* the cause of serialization in creole languages.

Notes

* Sections of this paper were presented in part at the April 1989 University of Chicago Roundtable on Finite/Nonfinite Structures in Creole Languages and at NVAE-XVIII, Duke University, October 1989. I would like to thank Roger Anderson, Alexander Caskey, Joe Dillard, David Dowty, John Goldsmith, John Holm, Claire Lefebvre, Solange Lira, Salikoko Mufwene, Craige Roberts, Gillian Sankoff, Albert Valdman, and Donald Winford for commenting on or offering input to the oral presentations or earlier drafts of this paper. I owe a special debt of gratitude to Pieter Seuren general editorial comments and specific suggestions on the treatment of scope. All errors and/or omissions are of course my sole responsibility. The fieldwork for the Saramaccan data in this paper was supported by grants from the National Science Foundation and the Consejo de Investigación of the Universidad de Oriente, Venezuela.

1. As far as is known, Hancock (1971) first coined the term. It refers to those creoles found in West Africa, the Caribbean, and eastern North and South America.

2. Since creolization is a process, there are greater or lesser degrees of application in any given creole setting depending on numerous linguistic and demographic factors. In other words, as numerous scholars have concluded (e.g., Philip Baker 1982; Bickerton 1984; Byrne 1983, 1987, 1988b; Hancock 1986; Mufwene 1987; and Carden and Stewart 1988), creolization does not apply equally in the creation of creole languages. Some of these languages are therefore "deeper" than others in that the former betray more features characteristic of the typology. (See Byrne (1987: Chapters II and VIII) as well as footnotes 7 through 11 in this paper for more references and details.)

3. Goodman (1985:127) notes that "serial verbs ... are common in West Africa, India, Southeast Asia, the Far East, and New Guinea (and perhaps elsewhere)."

4. The characteristics represent a compendium of those found in Bickerton (1989), Byrne (1982, 1984b, 1987, 1989b), and Jansen, Koopman and Muysken (1978).

5. This is a metaphorical use of the term *tense* to save, for purposes of this paper, unnecessary discussion. As extensively elaborated on in Byrne (1987, 1989a) and the theoretical literature cited in this paper, "tense" markers exemplified here may actually range somewhere between tense and aspectual readings (a characteristic common to creoles and many West African languages), but all function in the same way as tense operators in scopal considerations such as discussed in the literature for English and other similar European languages.

6. For more details on the fairly vigorous current debate on the various argument positions within serial structures, and whether one or another actually exist, see Mark Baker (1989), Bickerton and Iatridou (to appear), Byrne (1985b, 1986), and Sebba (1987), among others.

7. This view has been expressed by a theoretical cross section of creolists, but not for the same reasons. See Alleyne (1979), Bickerton (1984), Byrne (1987; 1988a,b), and Washabaugh (1981) for the details and reasoning behind the various positions.

8. The other major categories postulated in the theoretical literature are prepositions and adjectives. See Chomsky (1981, 1982) for more details on both major and minor categories.

9. From a non-theoretical viewpoint, determiner forms are usually looked upon as articles and demonstratives in many languages, but in others such as creoles, a wider distribution of functions is clearly evident. In SA, for example, not only do determiners and determiner-like formatives function as articles and demonstratives, but also as relative clause markers, subordinating conjunctions, and as markers of syntactic focus. See Byrne (1988a) for more details.

10. Muysken (1987) takes exception to the claim that prepositions in SA are few in number and a marginal category. He contends that there are in fact many more prepositions in the language than detailed in Bickerton and Byrne (1985) and their marginal status is thereby overplayed. However, I have some serious misgivings with Muysken's contentions.

First, Muysken (p.c.) notes that the data utilized for his conclusions came from De Groot (1977), a Dutch-Saramaccan dictionary with the usual information associated with such a volume. That is, there are the usual meanings presented for each entry, assertions of categoriality, and one or two sentence examples, but there certainly are no analyses to support the categorial claims. Moreover, in Muysken's paper he likewise simply states that certain formatives are prepositions without analysis of any sort.

Second, most of the items which Muysken claims to be prepositions are questionable, even without analysis. *té* 'until', for instance, exhibits *verbal characteristics* for some speakers in the southern dialect areas (Byrne 1987:237f). All but two others (and even these are doubtful without analyses to support a prepositional categorial status) are either *wh*-forms (subject to movement), or members of an extensive class of subordinating conjunctions (Byrne 1988a).

Given the previous discussion, there seems to be no reason to modify the positions that prepositions are marginal in SA and that they are not a viable category as a result of the most radical creolization. (See Bickerton 1984 and Byrne 1987.)

11. For example, the Instrumental role can either be expressed prepositionally (i) or serially (ii).

(i) a kóti dí kumálu ku dí fáka
he cut the kumálu (type of large fish) with the knife
'He cut the fish with the knife.'

(ii) a téi fáka kóti dí kumálu
he take knife cut the large-fish
'He cut the fish with the knife.'

Of the two, (ii) seems to be the older, original SA structure primarily because the prepositional pattern in (i) seems to be currently supplanting the serial strategy in terms of its ever increasing functional load.

Possession also has alternatives of expression: through a postnominal prepositionally *fu* (iii), or positionally in a possessor-possessed juxtaposition (iv).

- (iii) *koósu fu Jóhánési tene bigá a bi tá fėti*
 clothes of Jóhánési torn because he Tense Aspect fight
 'Johanese's clothes are torn because he was fighting.'

- (iv) *Jóhánési koósu tene bigá a bi tá fėti*
 Jóhánési clothes...
 'Johanese's clothes are torn because he was fighting.'

For more details on the Instrumental role and *fu* in SA, see Byrne (1984a,b; 1985b).

12. What we might call predicate adjectives in many languages exhibit the full range of verb diagnostics in SA and other creole languages. For example, like unambiguously verbal forms, tense and modality markers can precede these forms (i), and they can copy in sentence-initial position for emphasis (ii).

- (i) *dí wómi bi sa wisiwási*
 the man Tense Modal worthless
 'The man would have been worthless.'

- (ii) *wisiwási dí wómi wisiwási*
 worthless... ...worthless
 'The man is really WORTHLESS.'

See Sebba (1986) and Seuren (1986) for many more details along these lines.

13. Briefly, as part of the empirical evidence for a clause status, the possibility of overt tense marking warrants the presence of a subject for a variety of reasons within GB theory. On the empirical side and supporting the theory, overt subjects are variably attested for on the part of some speakers in selected contexts, including the Instrumental serial (i) (Byrne 1984b, 1987) and complements of perception verbs (Byrne 1989a).

- (i) *a: téi dí pau (a:) náki dí dágú*
 he take the stick (he) hit the dog
 'He hit the dog with the stick.'

- (ii) *a: sí enj (a:) tá kó a dí wòsu*
 he see him (he) ASP come to the house
 'He saw him coming to the house.'

Neither (i) nor (ii) is in any way construed by the speakers as constituting separate sentences or conjuncts (for empirically verifiable reasons).

A second bit of a theory-data combination for serial clausal status involves movement phenomena. In all cases where there are serials of the type

illustrated in (i) or (3) and (4) in the text (or any other sentences for that matter), any and all NPs may move through questioning or focus to sentence-initial position. The only way that this could happen, presuming multi-clausal status for serials and GB theory, is for the NP to temporarily "land" in a lower preclausal slot before continuing to sentence-initial position.

These considerations (i.e. subject, verb, tense, and movement), along with comparisons with other attested structure types, both lead to a conclusion that each serial is within a separate clause and militate against the non-clausal analyses of Mark Baker (1989) and Sebba (1987). See Byrne (1986) for more details.

14. Enç (1986, 1987), who analyzes tense as not having scope at least in some contexts, is the exception. However, the tense marking patterns in the serial structures under discussion here exhibit the appropriate diagnostics for scopal properties, so we assume such with justification.

15. A viable definition of c-command is from May (1985). This is:

a c-commands β if and only if all maximal projections including α include β .

16. Borer (1989), and adopted in Bickerton and Iatridou (to appear) and Bickerton (1990), offers an alternative analysis to that presented here. Briefly, she postulates an anaphoric AGR (which subsumes anaphoric tense and pronominals in subordinate contexts) to account for data like (13a,c) (but not (13b)). Specifically, as summarized in Bickerton (1990), the theory proposes the following:

Assuming the subordinate clause is attached at I-bar [from a government and binding (GB) perspective - my insertion], this would bring [serial clauses like *dá dí muyéa* 'give the woman (=for/to the woman)' in (13a,c) - my insertion] within the governing domain of matrix INFL... Subordinate INFL would then be bound by matrix INFL and would obligatorily carry the same features [like serial feature (1a)]... However, since subject and INFL are coindexed, there would be a chain of binding and coindexing linking matrix subject, matrix INFL, subordinate INFL and subordinate subject, so that the latter must bear the same index as matrix subject [as serial feature (1a) stipulates].

While the theory is elegant and accounts for much of the data, and indeed in most respects could substitute for the scope and spreading approach in this paper, still the analysis here is preferable for a number of reasons.

First, the concept of scope and spreading is more general, and applies to much more data (see section 3.2) than the notion of anaphoric tense. Now the repetitive tense marking shown here certainly is anaphoric, but spreading would seem to subsume it.

Second, the specifics of anaphoric tense are narrowly theory-bound and leave out some pertinent data. One such bit is the sentence in (13b) with the overt tense marker on the lower verb only. Borer's theory (and by implication, Bickerton and Iatridou's analysis) would not appear to be able to handle backwards anaphora as (13b) would warrant.

Other problematic bits of data are the sentences in section 3.3.1 from Cape Verdean *Kriolu* (CVK) and some found in Byrne (1987). Consider (i) and (ii) below.

- (i) a. el pode_{ba} konta CVK (Caskey 1987)
 he can-ANT sing
 'He could/was able to sing.'
- b. el pode kontaba
 he can sing-ANT
 'He could/was able to sing.'
- c. el pode_{ba} kontaba
 he can-ANT sing-ANT
 'He could/was able to sing.'
- (ii) a. a bi ke fu woóko a fótó
 he TNS want for/OBL work LOC Paramaribo (OBL=obligation)
 'He wanted to work in Paramaribo.'
- b. a ke bi fu woóko a fótó
 ...TNS...
 'He wanted to work in Paramaribo.'
- c. a ke fu bi woóko a fótó
 ...TNS...
 'He wanted to work in Paramaribo.'

In presuming *pode* 'can/be able' in (i-a,b,c) to be main-verbal (as suggested by the tense marking pattern), then the clause including *konta* 'sing' cannot be off of I-bar, but must be within a VP as normally formulated for modality verb-main semantic verb complexes. Similarly, the subordinate clauses in the SA data (ii-a,b,c) are obviously complements within VP and not off of I-bar as Borer (and by extension, Bickerton and Iatridou) proposes for serials. Yet, all of the above data evince tense marking exactly like SA serials. At the least, such evidence and the other comments in this note put in doubt the claim that anaphoric tense marking is due to an I-bar projection.

Given the difficulties explicated here, it would seem that the scope and spreading is better able to handle the data than the anaphoric AGR approach. Moreover, quite significantly, it would also seem that the matrix-complement clause configuration postulated for SA serials in Byrne (1987) is further substantiated particularly because of the tense patterning in the (iii-a,b,c) (unambiguously a projection within the matrix VP) which mirrors the pattern for SA and other languages' serializing structures (see the entire array of data in section 3). For similar conclusions, see Seuren (to appear).

17. See also McCawley (1988a:148, footnote 1; 271) and (1988b:524-25).

18. See Carlson (1983:70-78) for additional discussion and examples from numerous languages.

19. Among the publications which partly or directly lead to the subsequent conclusion concerning SA are the following: Bickerton (1984),

Bickerton and Byrne (1985), Bickerton and Iatridou (to appear), Byrne (1982; 1984a,b; 1985a,b; 1986; 1987; 1988b; 1989a; 1990).

20. Serials with a meaning like 'around' are not uncommon in serializing languages. In SA, for example, *lõntu* 'around, circle' functions as a matrix verb (i), allows tense marking as a serial (ii), and copies for emphasis in sentence-initial position as do all verbs in the language (iii).

- (i) Samo bi *lõntu* dí wósu
Samo TNS circle the house
'Samo had walked around the house.'
- (ii) Samo wáká bi *lõntu* dí wósu
Samo walk TNS around the house
'Samo had walked around the house.'
- (iii) *lõntu* Samo wáká *lõntu* dí wósu
around... ...around...
'Samo walked AROUND the house.'

21. What is still not determined, however, is if the range of marking on other than the first verb in serials (SA, ECFC, SC) or modality verb-main verb complexes (SA, CVK, GCPC) is limited exclusively to Romance creoles (a background which SA shares with GCPC, SC, ECFC and CVK). If it is, then there may be something different in the formative pidginization and creolization stages of these languages which produced such a pattern. As a first untested approximation, the common denominator could be the Romance base.

22. For a detailed analysis of the process of clause change from a finite to infinitive status, see Byrne (1987).

23. The TNS/ASP gloss for *g* in (30) is based on the analysis of the formative in Sebba (1987) and characteristics of a cognate formative in SA as analyzed in Byrne (1987).

24. See footnote 10.

References

- Alleyne, Mervyn. (1979). On the genesis of languages. In *The genesis of language* (ed. by Kenneth C. Hill), 89-107. Ann Arbor, MI: Karoma.
- Arends, Jacques. (1989a). *Syntactic developments in Sranan*. Doctoral dissertation, Katholieke Universiteit, Nijmegen, Holland.
- Arends, Jacques. (1989b). *Towards a gradualist model of creolization*. Paper presented at the 1989 Meeting of the Society of Pidgin and Creole Linguistics, held in conjunction with the Annual Meeting of the Linguistic Society of America, Washington, D.C., 28-29 December.
- Baker, Mark. (1989). Object sharing and projection in serial verb constructions. *Linguistic Inquiry* 20: 513-53.

- Baker, Philip. (1982). The contribution of non-Francophone immigrants to the lexicon of Mauritian Creole. Doctoral thesis, Univ. of London.
- Balmer, W.T. and F.C.F. Grant. (1929). A grammar of the Fante-Akan Language. London: Atlantis Press.
- Bickerton, Derek. (1981). Roots of language. Ann Arbor, MI: Karoma.
- Bickerton, Derek. (1984). The language bioprogram hypothesis. The Behavioral and Brain Sciences 7.173-88.
- Bickerton, Derek. (1987). Foreword to Francis Byrne's Grammatical relations in a radical creole, xi-xiv. Amsterdam/Philadelphia: Benjamins.
- Bickerton, Derek. (1988). Creole languages and the bioprogram. In Linguistics: The Cambridge survey. Vol. 2. Linguistic theory: Explanations and implications (ed. by Frederick J. Newmeyer), 268-84. Cambridge: Univ. Press.
- Bickerton, Derek. (1989). Seselwa serialization and its significance. Journal of Pidgin and Creole Languages 4.155-183.
- Bickerton, Derek. (1990). Subject focus and pronouns. Paper presented at the Conference on focus and grammatical relations in creole languages, University of Chicago, 10-12 May 1990.
- Bickerton, Derek and Francis Byrne. (1985). Syntactic markedness and parametric variation. Univ. of Hawaii, ms.
- Bickerton, Derek and Sabine Iatridou. (To appear). Verb serialization and empty categories.
- Binnick, Robert I. (1976). How aspect languages get tense. In Papers from the parasession on diachronic syntax (ed. by Sanford B. Steever, Carol A. Walker and Salikoko S. Mufwene), 40-49. Chicago: Chicago Linguistics Society.
- Borer, Hagit. (1989). Anaphoric AGR. In The null subject parameter (ed. by Osvaldo Jaeggli and Ken Safir), 69-109. Dordrecht: Reidel.
- Boretzky, Norbert. (To appear). The concept of rule, rule borrowing and substrate influence in creole languages. In Salikoko Mufwene (ed.).
- Byrne, Francis. (1982). Algunos aspectos del Saramacán. Cumaná, Venezuela: Publication of the Univ. de Oriente.
- Byrne, Francis. (1983). Pidgin and creole languages: How, when, who, where and why. Universidad de Oriente Papers on Language 1.23-48.
- Byrne, Francis. (1984a). Fu and fy: Origins and functions in some Caribbean English-based creoles. Lingua 62.97-120.

- Byrne, Francis. (1984b). Instrumental in Saramaccan. York Papers in Linguistics 11.39-50.
- Byrne, Francis. (1985a). pro_{prox} in Saramaccan. Linguistic Inquiry 16.313-20.
- Byrne, Francis. (1985b). Some aspects of the syntax of fu in Saramaccan. Amsterdam Creole Studies VIII.1-25.
- Byrne, Francis. (1986). Evidence against grammars without empty categories. Linguistic Inquiry 17.754-59.
- Byrne, Francis. (1987). Grammatical relations in a radical creole. Amsterdam/Philadelphia: Benjamins.
- Byrne, Francis. (1988a). Deixis as a noncomplementizer strategy for creole subordination marking. Linguistics 26.335-64.
- Byrne, Francis. (1988b). Towards a theory of theta-marking and creole depth. In Language change and contact: NWAY-XVI (ed. by Kathleen Ferrara et al.), 66-72. Austin: Dept. of Linguistics, Univ. of Texas (Texas Linguistics Forum 30).
- Byrne, Francis. (1989a). Determining finite/nonfinite complement and serial structures in Saramaccan and other languages. Paper presented at the Round Table on Finite and Infinitival Clauses in Creole Languages, Univ. of Chicago, April 18.
- Byrne, Francis. (1989b). Some consequences of exceptionally deprived L2 input in first language acquisition. In Interlingual processes (ed. by Hans Dechert and Manfred Raupach), 17-32. Tübingen: Gunter Narr Verlag.
- Byrne, Francis. (1990). A review of M. Alleyne's Studies in Saramaccan language structure. Journal of Pidgin and Creole Languages 5(1).
- Byrne, Francis. (To appear). Rules, language contact, substrate and what not: A reply to Boretzky. In Salikoko Mufwene (ed.).
- Byrne, Francis, Maria Cabrera and Liduvina Ruiz. (1989). A first look at El Callao, Venezuela, French Creole. Amsterdam Creole Studies X.1-31.
- Carden, Guy and William A. Stewart. (1988). Binding theory, bioprogram, and creolization: Evidence from Haitian Creole. Journal of Pidgin and Creole Languages 3(1).1-67.
- Carlson, Greg N. (1983). Marking constituents. In Linguistic categories: Auxiliaries and related puzzles. Volume One: Categories (ed. by Frank Heny and Barry Richards), 69-98. Dordrecht: Reidel.
- Caskey, Alexander F. (1987). Creole verbal morphology: The case of Cape Verdean Kriolu. Paper presented at the Department of Linguistics, Univ. of Chicago, May 14.

- Caskey, Alexander F. (1989). Development and expansion of morphology in the Portuguese-influenced creoles in Africa. Paper presented at the 20th African Linguistics Conference, April 20-22.
- Chomsky, Noam. (1981). Lectures on government and binding. Dordrecht: Foris.
- Chomsky, Noam. (1982). Some concepts and consequences of the theory of government and binding. Cambridge, MA: MIT Press.
- Chomsky, Noam. (1986). Barriers. Cambridge, MA: MIT Press.
- Chomsky, Noam. (1988). Some notes on Economy of derivation and representation. MIT, ms.
- Crystal, David. (1985). A dictionary of linguistics and phonetics, 2nd ed. Oxford: Basil Blackwell.
- Enç, Murvit. (1986). Tense without scope: An analysis of nouns as indexicals. Bloomington, IN: Indiana Univ. Linguistics Club.
- Enç, Murvit. (1987). Anchoring conditions for tense. Linguistic Inquiry 18.633-57.
- Faracías, Nicholas. (1989). From old Guinea to Papua New Guinea II: Tracing Niger-Congo influence in the development of Nigerian Pidgin. Paper presented at the 20th African Linguistics Conference, Univ. of Illinois, 19-21 April.
- Goldsmith, John. (1976). Autosegmental phonology. Bloomington, IN: Indiana Univ. Linguistics Club.
- Goodman, Morris. (1985). Review of Derek Bickerton's Roots of language. International Journal of American Linguistics 51.109-37.
- Gordon, E.V. (1927). Introduction to Old Norse. Oxford: University Press.
- Hancock, Ian. A provisional comparison of the English-derived Atlantic creoles. In Pidginization and creolization of languages (ed. by Dell Hymes), 287-91. Cambridge: Univ. Press.
- Hancock, Ian. (1986). The domestic hypothesis, diffusion and componentiality: An account of Atlantic Anglophone creole origins. In Pieter Muysken and Norval Smith (eds.), 71-102.
- Holm, John. (1986). Substrate diffusion. In Pieter Muysken and Norval Smith (eds.), 259-78.
- Holm, John. (1987). African substratal influence on the Atlantic creole languages. In Varia Creolica. Bochum-Essener Beiträge zur Sprachwandelforschung, vol. 3. (ed. by Philip Maurer and Thomas Stolz), 11-26. Bochum: Brockmeyer.

- Holm, John. (1988). Pidgins and creoles. Vol. I: Theory and structure. Cambridge: Univ. Press.
- Huttar, George. (1975). Sources of creole semantic structures. Language 51.684-95.
- Huttar, George. (1981). Some Kwa-like features of Djuka syntax. Studies in African Linguistics 12.291-323.
- Huttar, George. (1985). Sources of Ndjuka African vocabulary. De Nieuwe West-Indische Gids 59.45-71.
- Hyman, Larry. (1971). Consecutivization in Fe'fe'. Journal of African Languages 10.29-43.
- Jansen, Bert., Hilda Koopman and Pieter Muysken. (1978). Serial verbs in the creole languages. Amsterdam Creole Studies II.125-59.
- Janssen, T. (1983). Scope ambiguities of tense, aspect and negation. In Linguistic categories: Auxiliaries and related puzzles. Volume two: The scope, order, and distribution of English auxiliary verbs (ed. by Frank Heny and Barry Richards), 55-99. Dordrecht: Reidel.
- Kim, Y. and Richard Larson. (1989). Scope interpretation and the syntax of psych-verbs. Linguistic Inquiry 20.681-88.
- Labov, William. (1972). Negative attraction and negative concord in English grammar. Language 48.773-818.
- Larson-Freeman, D. (1976). An explanation for the morpheme acquisition order of second language learners. Language Learning 26.125-34.
- Lefebvre, Claire. (1986). Relexification in creole genesis revisited: The case of Haitian Creole. In Pieter Muysken and Norval Smith, 279-300.
- Lightfoot, David. (1979). Principles of Diachronic Syntax. Cambridge: Univ. Press.
- May, R. (1977). The grammar of quantification. Doctoral diss., MIT.
- May, R. (1985). Logical form: Its structure and derivation. Cambridge, MA: MIT Press.
- McCawley, James D. (1988a). The syntactic phenomena of English, vol. 1. Chicago: Univ. of Chicago Press.
- McCawley, James D. (1988b). The syntactic phenomena of English, vol. 2. Chicago: Univ. of Chicago Press.
- Millward, C.M. (1989). A biography of the English language. New York: Holt.
- Mufwene, Salikoko. (1986). The universalist and substrate hypotheses complement one another. In Pieter Muysken and Norval Smith (eds.), 129-62.

- Mufwene, Salikoko. (1987). Pidginization/creolization: An evolutionary biology analogue. Lecture presented at Northwestern Univ., 5 May 1987.
- Mufwene, Salikoko. (To appear). Pidgins, creoles, typology, and markedness. In Development and Structure in Creole Languages (ed. by Francis Byrne and Thom Huebner). Amsterdam/Philadelphia: Benjamins.
- Mufwene, Salikoko (ed.) (To appear). Africanisms in Afro-American language varieties. Athens: Univ. of Georgia Press.
- Mufwene, Salikoko and Marta Dijkhoff. (1989). On the so-called infinitive in creoles. Lingua 77.319-52.
- Muysken, Pieter. (1987). Prepositions and postpositions in Saramaccan. In Studies in Saramaccan Language Structures (ed. by Mervyn Alleyne), 89-102. Amsterdam: Instituut voor Algemene Taalwetenschap, Univ. van Amsterdam; Mona, Jamaica: Folklore Studies Project, Univ. of the West Indies.
- Muysken, Pieter and Norval Smith (eds.) (1986b). Substrate versus universals in creole genesis. Amsterdam/Philadelphia: Benjamins
- Pasch, Helma. (1979). Pidginization and creolization processes in Sango. Paper presented at the 1989 Meeting of the Society of Pidgin and Creole Linguistics, held in conjunction with the Annual Meeting of the Linguistic Society of America, Washington, D.C., 28-29 December.
- Peck, Stephen M. (1988). Tense, aspect and mood in Guinea-Casamance Portuguese Creole. Unpublished doctoral dissertation, UCLA.
- Pesetsky, D. (1982). Paths and categories. Unpublished doctoral dissertation, MIT, Cambridge, MA.
- Price, Richard. (1976). The Guiana maroons: A historical and bibliographical introduction. Baltimore: Johns Hopkins Univ. Press.
- Price, Richard (1983a). First time: The historical vision of an Afro-American people. Baltimore: Johns Hopkins Univ. Press.
- Price, Richard. (1983b). To slay the hydra: Dutch colonial perspectives on the Saramaka wars. Ann Arbor, MI: Karoma.
- Riemsdijk, Henk van and Edwin Williams. (1986). Introduction to the Theory of Grammar. Cambridge, MA: MIT Press.
- Schachter, Paul. (1974). A non-transformational account of serial verbs. Studies in African Linguistics 5.263-70.
- Sebba, Mark. (1984). Serial verbs: Something new out of Africa. York Papers in Linguistics 11.271-278.
- Sebba, Mark. (1986). Adjectives and copulas in Sranan Tongo. Journal of Pidgin and Creole Languages 1(1).109-121.

- Sebba, Mark. (1987). The syntax of serial verbs: An investigation into serialisation in Sranan and other languages. Amsterdam/Philadelphia: Benjamins.
- Seuren, Pieter A.M. (1985). Discourse Semantics. Oxford: Basil Blackwell.
- Seuren, Pieter A.M. (1986). Adjectives as adjectives in Sranan. *Journal of Pidgin and Creole Languages* 1(1).123-134.
- Seuren, Pieter A.M. (to appear). The definition of serial verbs. In Development and structures of creole languages (ed. by Francis Byrne and Thom Huebner), 193-205. Amsterdam/Philadelphia: John Benjamins.
- Stahlke, Herbert. (1970). Serial verbs. *Studies in African Linguistics* 1.60-99.
- Washabaugh, William. (1981). Pursuing creole roots. In Generative studies on creole languages (ed. by Pieter Muysken), 85-102. Dordrecht: Foris.
- Williams, Wayne. (1971). Serial verb constructions in Krio. *Studies in African Linguistics* 2.47-65.